

REMARKS

In the Office Action of May 11, 2004, the Examiner rejected claims 1, 12, 13, and 17 under 35 U.S.C. § 102(b) as being anticipated by US Patent No. 4,258,671 to Takizawa et al.; rejected claims 1, 12, 13, 17, and 20 under 35 U.S.C. § 102(e) as being anticipated by US Patent No. 6,688,280 to Weber et al.; rejected claims 1, 12, 13, 17, and 20 under 35 U.S.C. § 102(b) as being anticipated by US Patent No. 6,257,182 to Hara et al.; rejected claims 1, 12, and 17 under 35 U.S.C. § 102(e) as being anticipated by US Patent No. 6,647,935 to Aoyama et al.; rejected claims 1, 12, and 17 under 35 U.S.C. § 102(e) as being anticipated by US Patent No. 6,691,654 to Uehara et al.; rejected claims 2-11, 14-16, and 18 under 35 U.S.C. § 103(a) as being unpatentable over Weber et al. in view of US Patent No. 5,720,261 to Sturman et al., and rejected claims 2-11, 14-16, and 18 under 35 U.S.C. § 103(a) as being unpatentable over Hara et al. in view of Sturman et al.

Applicants wish to thank the examiner for the personal interview of July 28, 2004. This Reply is consistent with the issues discussed and the agreements reached during the interview.

Applicants have amended claims 1, 12, and 17, and have added new claims 21-27 to further claim aspects of Applicants' invention. Accordingly, claims 1-27 are pending in this application.

Applicants respectfully traverse the 35 U.S.C. § 102(b) rejection of claims 1, 12, 13, and 17 as being anticipated by Takizawa et al. for at least the reason that Takizawa et al. fails to disclose every claim element. For example, independent claims 1 and 17 disclose a combination of elements including, among other things, an electromagnetic actuator configured to selectively mechanically contact an intake valve to modify a

timing of the intake valve in moving from a second end position to a first end position. Further, independent claim 12, from which claim 13 depends, discloses a combination of steps including, among other things, actuating an electromagnetic solenoid associated with an intake valve when the intake valve is away from a first end position to selectively mechanically contact the intake valve to modify a timing of the intake valve in moving from the second end position to the first end position.

In the Office Action, the Examiner maintained that Takizawa et al. discloses an electromagnetic actuator configured to selectively modify timing of an intake valve. Specifically, the Examiner suggested that an electromagnetic valve (43) of Takizawa et al. constitutes the electromagnetic actuator of independent claims 1 and 17. However, the electromagnetic valve (43) does not selectively mechanically contact an intake valve, as recited in independent claims 1 and 17. In contrast, as illustrated in the figure of Takizawa et al. the electromagnetic valve (43) of Takizawa et al. is only hydraulic linked to an engine valve and never mechanically contacts the engine valve at all.

In addition, Takizawa et al. does not disclose actuating the electromagnetic valve (43) to selectively mechanically contact an intake valve, as recited in claim 13. In contrast, as recited in the abstract of Takizawa et al., electromagnetic valve (43) is actuated to maintain an oil pressure that varies valve lift. Electromagnetic valve (43) of Takizawa et al. never mechanically contacts the valve at all.

For at least these reasons, Takizawa et al. fails to disclose all the elements of independent claims 1, 12, and 17. Accordingly, the rejection under 35 U.S.C. § 102(b) of claims 1, 12, 13, and 17 as being anticipated by Takizawa et al. is improper and should be withdrawn.

Applicants respectfully traverse the 35 U.S.C. § 102(e) rejection of claims 1, 12, 13, 17, and 20 as being anticipated by Weber et al. for at least the reason that Weber et al. fails to disclose every claim element. As described above, independent claims 1 and 17, from one of which claim 20 ultimately depends, disclose an electromagnetic actuator configured to selectively mechanically contact an intake valve to modify a timing of the intake valve in moving from a second end position to a first end position. Independent claim 12, from which claim 13 depends, discloses actuating an electromagnetic solenoid associated with an intake valve when the intake valve is away from a first end position to selectively mechanically contact the intake valve to modify a timing of the intake valve in moving from the second end position to the first end position.

In the Office Action, the Examiner maintained that Weber et al. discloses an electromagnetic actuator configured to selectively modify timing of an intake valve. Specifically, the Examiner suggested that variable intake valve closing mechanism (238) of Weber et al. constitutes the claimed electromagnetic actuator of independent claims 1 and 17. However, the variable intake valve closing mechanism (238) of Weber et al. is not an electromagnetic actuator and does not selectively mechanically contact an intake valve, as recited in independent claims 1 and 17. In fact, Weber et al. does not recite any specific structure for the variable intake valve closing mechanism (238). As recited in col. 5, line 61 through col. 6, line 5, Weber et al. only describes the variable intake valve closing mechanism as being operated hydraulically, pneumatically, electrically, or mechanically.

In addition, Weber et al. does not disclose actuating the variable intake valve closing mechanism (238) to selectively mechanically contact an intake valve, as recited

in independent claim 12. In contrast, the only example that Weber et al. discloses includes the variable intake valve closing mechanism (238) being actuated to supply a hydraulic fluid that resists closing of an intake valve.

For at least these reasons, Weber et al. fails to disclose all the elements of independent claims 1, 12, and 17. Accordingly, the rejection under 35 U.S.C. § 102(e) of independent claims 1, 12, 13, 17, and 20 as being anticipated by Weber et al. is improper and should be withdrawn.

Applicants respectfully traverse the 35 U.S.C. § 102(b) rejection of claims 1, 12, 13, 17, and 20 as being anticipated Hara et al. by for at least the reason that Hara et al. fails to disclose every claim element. As described above claims 1 and 17, and claim 20 that ultimately depends from claim 17, disclose a cam assembly configured to move an intake valve between a first end position and a second end position, and an electromagnetic actuator configured to selectively mechanically contact the intake valve to modify a timing of the intake valve in moving from the second end position to the first end position. Further, claim 12 and claim 13, which depends from claim 12, disclose moving an intake valve via a cam between a first end position and a second end position, and actuating an electromagnetic solenoid associated with the intake valve when the intake valve is away from the first position to selectively mechanically contact the intake valve to modify a timing of the intake valve in moving from the second end position to the first end position.

In the Office Action, the Examiner maintained that Hara et al. discloses a cam assembly connected to the intake valve to move the intake valve between first and second positions, and an electromagnetic actuator configured to selectively modify

timing of the intake valve. Specifically, the Examiner suggested that first and second swing cams (56, 57) and electromagnetic drive mechanism (24) of Hara et al. constitute the cam assembly and electromagnetic actuator of claims 1, 17, and 20. However, swing cams (56, 57) of Hara et al. do not move an intake valve between a first end position and a second end position. In contrast, as illustrated in Figs. 8 and 13, swing cams (56, 57) are disposed between electromagnetic drive mechanism (24) and intake valve (23), and biased by springs (65) and (28) to only dampen movement caused by electromagnetic drive mechanism (24). Further, because electromagnetic drive mechanism (24) is the only mechanism moving intake valve (23), there is no existing valve timing for electromagnetic drive mechanism (24) to modify. Further, electromagnetic drive mechanism (24) is not configured to selectively mechanically contact an intake valve (23). In contrast, as illustrated in Figs. 1, 5, 6, 8, 12, 13, 15, 19, 20, and 21 of Hara et al. spring (28) causes electromagnetic drive mechanism (24) to remain engaged with intake valve (23).

In addition, Hara et al. does not disclose moving an intake valve via a cam between a first end position and a second end position and actuating an electromagnetic solenoid associated with the intake valve when the intake valve is away from the first end position to selectively mechanically contact the intake valve to modify a timing of the intake valve, as recited in claims 12 and 13. As described above, cams (56) and (57) only dampen movement caused by electromagnetic drive mechanism (24) and do not move intake valve (23). Further, because electromagnetic drive mechanism (24) of Hara et al. is the only mechanism that moves intake valve (23), electromagnetic drive mechanism (24) must already be actuated when the intake valve is away from the

first end position. Therefore, electromagnetic drive mechanism (24) can not be actuated when intake valve (23) is away from the first end position to modify a timing. In addition, because electromagnetic drive mechanism (24) is the only mechanism that moves intake valve (23), there is no existing timing to modify. Moreover, as illustrated in Figs. 1, 5, 6, 8, 12, 13, 15, 19, 20, and 21 of Hara et al. spring (28) causes electromagnetic drive mechanism (24) to remain engaged with intake valve (23) and electromagnetic drive mechanism (24) never selectively contacts intake valve (23).

For at least these reasons, Hara et al. fails to disclose all the elements of 1, 12, 13, 17, and 20. Accordingly, the rejection under section 102(b) of independent claims 1, 12, 13, 17, and 20 as being anticipated by Hara et al. is improper and should be withdrawn.

Applicants respectfully traverse the 35 U.S.C. § 102(e) rejection of claims 1, 12, and 17 as being anticipated by Aoyama et al. for at least the reason that Aoyama et al. fails to disclose every claim element. As described above, independent claims 1 and 17 disclose an electromagnetic actuator configured to selectively mechanically contact an intake valve to modify a timing of the intake valve in moving from a second end position to a first end position. Further, independent claim 12 discloses actuating an electromagnetic solenoid associated with an intake valve when the intake valve is away from a first end position to selectively mechanically contact the intake valve to modify a timing of the intake valve in moving from a second end position to the first end position.

In the Office Action, the Examiner maintained that Aoyama et al. discloses an electromagnetic actuator configured to selectively modify timing of an intake valve. Specifically, the Examiner suggested that hydraulic control modules (22) and (42) of

Aoyama et al. constitute the electromagnetic actuator of independent claims 1 and 17. However, the hydraulic control modules (22) and (42) of Aoyama et al. do not selectively mechanically contact an intake valve. In contrast, as describe in col. 6, line 52 through col. 7, line 36, hydraulic control modules (22) and (42) are only fluidly connected to a hydraulic chamber (41) that controls a cam position relative to an intake valve. The hydraulic control modules (22) and (42) of Aoyama et al. never even mechanically contact an intake valve at all, much less in a selective relationship.

Similarly, Aoyama et al. does not disclose actuating the hydraulic control modules (22) and (42) to selectively mechanically contact an intake valve, as recited in independent claim 12.

For at least these reasons, Aoyama et al. fails to disclose all the elements of independent claims 1, 12, and 17. Accordingly, the rejection under section 102(e) of independent claims 1, 12, and 17 as being anticipated by Aoyama et al. is improper and should be withdrawn.

Applicants respectfully traverse the 35 U.S.C. § 102(e) rejection of claims 1, 12, and 17 as being anticipated by Uehara et al. for at least the reason that Uehara et al. fails to disclose every claim element. As described above, independent claims 1 and 17 disclose an electromagnetic actuator configured to selectively mechanically contact an intake valve to modify a timing of the intake valve in moving from a second end position to a first end position. Further, independent claim 12 discloses actuating an electromagnetic solenoid associated with an intake valve when the intake valve is away from a first end position to selectively mechanically contact the intake valve to modify a timing of the intake valve in moving from a second end position to the first end position.

In the Office Action, the Examiner maintained that Uehara et al. discloses an electromagnetic actuator configured to selectively modify timing of an intake valve. Specifically, the Examiner suggested that motor (34) and ECU (35) of Uehara et al. constitute the electromagnetic actuator of independent claims 1 and 17. However, the motor (34) and ECU (35) of Uehara et al. do not selectively mechanically contact an intake valve. In contrast, as illustrated in Fig. 2 of Uehara et al., the ECU (35) is electrically connected to the motor (34), which is connected to a control shaft (32), to thereby modify a cam position relative to an intake valve. Neither ECU (35) nor motor (34) of Uehara et al. ever mechanically contact an intake valve in a selective relationship.

Similarly, Uehara et al. does not disclose actuating the ECU (35) or motor (34) to selectively mechanically contact an intake valve, as recited in independent claim 12.

For at least these reasons, Uehara et al. fails to disclose all the elements of independent claims 1, 12, and 17. Accordingly, the rejection under section 102(e) of independent claims 1, 12, and 17 is improper and should be withdrawn.

Applicants respectfully traverse the 35 U.S.C. § 103(a) rejection of claims 2-11, 14-16, and 18 as being unpatentable over Weber et al. in view of Sturman et al. The 35 U.S.C. § 103(a) rejection of claims 2-11, 14-16, and 18 is improper for at least the reason that Weber et al. can not be used as the basis for a 103(a) rejection. Weber et al. qualifies as prior art only under 102(e) and because both Weber et al. and the instant application were subject to an obligation of assignment to the same person at the time the invention of the instant application was made. As recited in 35 U.S.C. § 103(c), "Subject matter developed by another person, which qualifies as prior art only under

one or more of subsections (e), (f), and (g) of section 102..., shall not preclude patentability under this section [35 U.S.C. § 103] where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.” Accordingly, the rejection of claims 2-11, 14-16, and 18 under 35 U.S.C. § 103(a) should be withdrawn.

Applicants respectfully traverse the 35 U.S.C. § 103(a) rejection of claims 2-11, 14-16, and 18 as being unpatentable over Hara et al. in view of Sturman et al. No *prima facie* case of obviousness has been established with respect to claims 2-11, 14-16, and 18 for at least the reason that no combination of Hara et al. and Sturman et al. discloses or suggests every claim element. For example, independent claims 1 and 17, from one of which claims 2-11 and 18 ultimately depend, recite a combination of elements including, among other things, a cam assembly configured to move an intake valve between a first end position and a second end position, and an electromagnetic actuator configured to selectively mechanically contact an intake valve to modify a timing of the intake valve in moving from the second end position to the first end position. Further, independent claim 12, from which claims 14-16 ultimately depend, recites a combination of steps including, among other things, moving an intake valve via a cam between a first end position and a second end position, and actuating an electromagnetic solenoid associated with the intake valve when the intake valve is away from the first end position to selectively mechanically contact the intake valve to modify a timing of the intake valve in moving from the second end position to the first end position.

As described above, the Examiner has maintained that electromagnetic drive mechanism (24) of Hara et al. constitutes the claimed electromagnetic actuator of

independent claims 1 and 17. However, as described above, swing cams (56, 57) of Hara et al. do not move an intake valve between a first end position and a second end position, but only act to dampen movement caused by electromagnetic drive mechanism (24). In addition, the electromagnetic drive mechanism (24) of Hara et al. does not selectively mechanically contact an intake valve, but, in contrast, remains engaged with intake valve (23). Sturman et al., which was cited only for its alleged teaching of a controller, fails to remedy these deficiencies.

Because Hara et al. and Sturman et al., taken either alone or in combination, fail to disclose or suggest all of the elements of independent claims 1, 12, and 17, no *prima facie* case of obviousness has been established with respect to independent claims 1, 12, and 17. Accordingly, the section 103(a) rejection of claims 2-11, 14-16, and 18, which ultimately depend from one of independent claims 1, 12, and 17, is improper and should be withdrawn.

Applicants submit that new claims 21-27 are neither anticipated nor rendered obvious by the prior art. In particular, claims 21-25 recite a combination of elements including, among other things, an electromagnetic actuator configured to selectively hold an intake valve in a position between a first end position and second end position. Further, claims 26 and 27 recite a combination of steps including, among other things, actuating an electromagnetic solenoid associated with an intake valve when the intake valve is away from a first end position to selectively hold the intake valve in position between the first end position and a second end position.

The Office Action contains characterizations of the claims and the related art with which Applicants do not necessarily agree. Unless expressly noted otherwise, Applicants decline to subscribe to any statement or characterization of the Office Action.

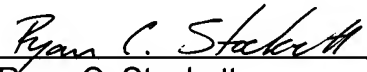
In view of the foregoing amendments and remarks, Applicants respectfully request the reconsideration of this application and the timely allowance of the pending claims.

If there is any fee due in connection with the filing of this Preliminary Amendment, please charge the fee to our Deposit Account No. 06-0916.

Respectfully submitted,

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